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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,595	02/09/2004	Koji Akutsu	09788/0200538-US0	3483
7278	7590	03/09/2006	EXAMINER	
DARBY & DARBY P.C.			HO, ALLEN C	
P. O. BOX 5257			ART UNIT	
NEW YORK, NY 10150-5257			PAPER NUMBER	
			2882	

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/776,595	Applicant(s) AKUTSU ET AL.	
	Examiner Allen C. Ho	Art Unit 2882	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-19 recite "a shape data registering means for each x-ray imaging system for registering external shape data of three dimensional models corresponding to three dimensional shapes of objects, wherein the models are in voxel data tree format". It is unclear what these objects are. There is no connection between the objects and x-ray imaging systems.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iizuka (U. S. Patent No. 6,435,713 B1) in view of Alexandrescu (U. S. Patent No. 6,272,368 B1) and Wakabayashi (U. S. Patent No. 6,407,738 B1).

With regard to claims 1-4, 7-9, and 17-19, Iizuka disclosed a radiographic x-ray device comprising: a plurality of x-ray imaging systems (20, 30, 40) each comprising an x-ray tube (22, 32, 41) and an x-ray detector (21, 31, 42), which are arranged to face each other and are mounted on each end of a support arm (23, 33); a top plate (10) configured to move in reference to a common coordinated system having the mechanical center of the device as the reference point; an x-ray imaging system transport mechanism (24, 35, 45) for transporting the x-ray imaging systems using a common coordinate system having a mechanical center of the device as a reference point; a positional relation detecting means (50) for obtaining in real time information regarding positional relations of the x-ray imaging systems (column 5, lines 22 - 29); and an imaging system transport control means (50) for controlling the x-ray imaging system transport mechanism (column 2, line 64 - column 3, line 21) in accordance with the information regarding the positional relations of the x-ray imaging systems detected by the positional relation detecting means.

However, although Iizuka disclosed a positional relation detecting means (50) that monitors the positions of the x-ray imaging systems, Iizuka failed to disclose a shape data registering means for registering external shape data of three dimensional models corresponding to three dimensional shapes of objects, wherein the models are in voxel data tree format.

Alexandrescu disclosed a radiological x-ray device comprising: a shape data registering means (11, 15) for registering external shape data of three-dimensional models in triangular format corresponding to three-dimensional shapes of an x-ray imaging system (1, 2, 3) and a patient support (8) (column 3, lines 21 - 36); and a positional relation detecting means (14) for obtaining in real time information regarding positional relations of the x-ray imaging system and

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the patient support based on current positions of x-ray imaging system and the patient support, and the external shape data of the three dimensional model. As pointed out by Alexandrescu, the advantage of this shape data registering means is that every object in the room in which the radiological x-ray device is installed could be scanned and registered (column 2, lines 5 - 15).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the radiographic x-ray device disclosed by Iizuka with the shape data registering means disclosed by Alexandrescu, since a person would be motivated to prevent a collision between various objects (*e. g.* x-ray imaging systems, patient support, personnel) within the radiographic x-ray device by monitoring the positions and the positional relations of the various objects.

Wakabayashi disclosed a three-dimensional model formulation using voxel data tree format (column 5, lines 20-40). Wakabayashi taught that three-dimensional modeling using voxels (hexahedral elements) is preferred over triangular (tetrahedral) elements because higher analytical accuracy could be achieved (column 1, lines 15-34).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to replace the three-dimensional models in triangular format with three-dimensional models in voxel tree format, since a person would be motivated to describe the objects with higher accuracy.

With regard to claims 5 and 10-12, Iizuka, Alexandrescu, and Wakabayashi disclosed a radiographic x-ray device of claims 1-4, wherein the position relation detecting means obtains the information regarding the positional relations of the x-ray imaging systems using an

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algorithm that judges whether there is any physical contact between the x-ray imaging systems (Alexandrescu, column 3, line 54 - 61).

With regard to claims 6, and 13-16, Iizuka, Alexandrescu, and Wakabayashi disclosed a radiographic x-ray device of claims 1-4, wherein the positional relation detecting means obtains the information regarding the positional relations of the x-ray imaging systems using an algorithm that calculates the minimum distance (spacing) between the x-ray imaging systems (Alexandrescu , column 3, line 54 - 61).

### ***Response to Arguments***

5. Applicant's arguments filed 06 January 2006 with respect to claims 5, 10-12, and 16 have been fully considered and are persuasive. The rejection of claims 5, 10-12, and 16 under 35 U.S.C. 112, second paragraph, has been withdrawn.

6. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen C. Ho  
Primary Examiner  
Art Unit 2882

06 March 2006